SIGIR INSPECTIONS

The SIGIR Inspections Division conducts assessments of individual relief and reconstruction projects across Iraq to ascertain the adequacy and efficacy of reconstruction work. To further its mission, SIGIR Inspections leverages the work of other government agencies and contractors, using a variety of tools, including eyewitness reviews and satellite imagery.

Since the October 2005 Report to Congress, SIGIR inspectors have:

- completed 13 project assessments
- completed a special assessment of horizontal directional drilling (HDD) for oil pipelines under the Tigris River
- processed and summarized 60 limited preliminary assessments on projects provided by U.S. government quality control and assurance staff
- analyzed satellite imagery to identify potential sites for future inspections

Approach

During this quarter, SIGIR conducted 13 eyewitness inspections of reconstruction project sites. To accomplish assessments, teams of SIGIR engineers and auditors gather contractual specifications, travel to the project sites, examine on-site efforts and accomplishments, and review their results with reconstruction managers. The initial success of the first integrated assessment team during the quarter ending June 2005 prompted SIGIR to establish three more teams. Two additional assessment teams became operational during this quarter, and a third new team will be added next quarter.

SIGIR has begun to conduct analyses using satellite imagery on projects that are remote or inaccessible because of security concerns. This satellite imagery helps inspection teams in their preliminary research on site. This quarter, SIGIR continued to expand its satellite imagery operation, conducting 53 imagery assessments.

Planning

SIGIR has selected a cross-section of projects from each of the major reconstruction sectors to assess, survey, and analyze, including:

- water, electricity, oil, facilities, and transportation projects
- projects involving large and small contract amounts
- projects with different general contractors
- projects in different sections of the country
- projects in the programs of each of the major U.S. agencies
- fully completed projects and projects in various stages of completion
- construction and non-construction projects

Results

SIGIR's presence across Iraq continues to promote and achieve better accountability

by contractors, prompting them to perform more effectively. The assessments conducted in Iraq this quarter revealed a mix of problems and progress in contractor performance. As indicated in the reports, SIGIR has concerns about inadequate construction at some sites, as well as the failure to comply with contract provisions at four border forts, which required more perimeter security than was found at the time of the assessment. SIGIR also reviewed projects in Hilla, revisiting sites that were the subject of a series of highly critical SIGIR audits in 2004. These audits led to several significant investigations that have produced four arrests to date. Unfortunately, SIGIR's latest review at Hilla revealed that corrective action still needs to be taken to reach the goals initially identified in those projects. SIGIR's project assessments this quarter were quite positive regarding the sustainability plans in place at the sites visited. Specifically, SIGIR inspectors found that GRD-PCO had initiated actions to address sustainability deficiencies at some sites.

Table 3-4 presents a summary of SIGIR project assessments completed during this reporting period.

Projects Assessed this Quarter (dollars in thousands)

Project Name	Governorate	Budgeted Total Cost	Executing Agency	Contractor	GRD-PCO Region
Hilla SWAT Facility	Babylon	$2,219	GRD-PCO	Foreign	South
Al Balda Police Station	Babylon	$135	GRD-PCO	Foreign	South
Border Post As Sul #37- Bnawasuta-Issawa	Sulaymaniyah	$272	GRD-PCO	Parsons Delaware	North
Border Post As Sul #29- Kuralau Bnaw-Azmik	Sulaymaniyah	$275	GRD-PCO	Parsons Delaware	North
Border Post As Sul #20- Marwa	Sulaymaniyah	$272	GRD-PCO	Parsons Delaware	North
Border Post As Sul #23- Bargurd-Safrah	Sulaymaniyah	$272	GRD-PCO	Parsons Delaware	North
Military Base Um Qasr Ammo Supply Point	Basrah	$253	GRD-PCO	Foreign	South
Operation Center and Security	Basrah	$1,175	GRD-PCO	Foreign	South
Port of Um Qasr Security Upgrades	Basrah	$3,747	GRD-PCO	Foreign	South
Project Phoenix Restore Qudas Gas Turbines	Baghdad	$11,391	GRD-PCO	FluorAmec	Central
Hilla Police Academy CN W914NS-04-C-9046	Babylon	$9,135*	JCC-I/A	Foreign	South
Kerbala Library	Kerbala	$1,294	CPA (South-Central)	Global Business Group	South
Horizontal Drilling	Tameem	$75,500	GRD-PCO	KBR	North

*Construction Portion of the Life Support Contract

Table 3-4

On-site Project Assessment Program Approach

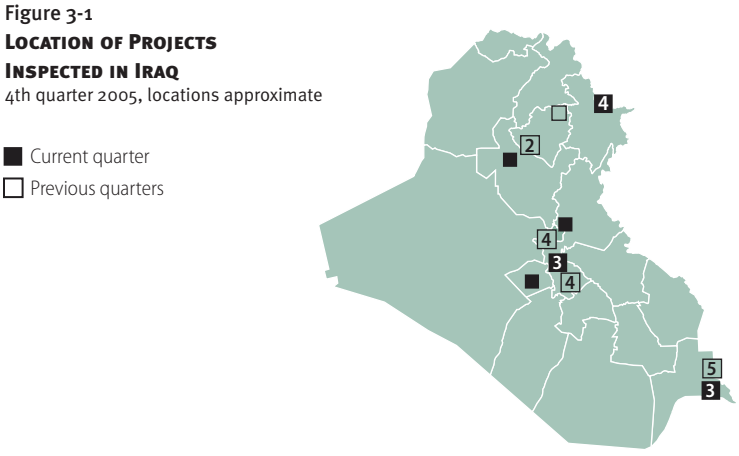
Since June 2005, SIGIR has completed 29 project assessments, including one special assessment. During this most recent quarter, SIGIR inspected and completed assessments of 13 project sites and one special assessment. The general objectives governing the project assessments included:

- Were the project results consistent with the original objectives?
- Were the project components adequately designed before construction or installation?
- Did the construction or rehabilitation adequately meet the standards of the design?
- Were the contractor's quality control plan and the U.S. government's quality assurance (QA) program adequately carried out?
- Were project sustainability and operational effectiveness addressed?

For a list of project assessments completed in previous quarters, see Table 3-5.

For the approximate location of each project assessment, see Figure 3-1.

Figure 3-1
LOCATION OF PROJECTS INSPECTED IN IRAQ
4th quarter 2005, locations approximate



Projects Assessed in Previous Quarters (dollars in thousands)

GRD-PCO ID	Project Name	Governorate	Budgeted Total Cost	Executing Agency	Contractor	GRD-PCO Region
3532	Al Wahda Water Treatment Plant	Baghdad	$4,712	GRD-PCO	FluorAmec	Central
3529	Al Wathba Water Treatment Plant	Baghdad	$8,698	GRD-PCO	FluorAmec	Central
18462	Al Nahrwan Water Supply Project	Baghdad	$348	GRD-PCO	Foreign	Central
18079	Al Sumelat Water Network	Baghdad	$764	GRD-PCO	SIMA International	Central
1654	Al Hakamia Substation	Basrah	$5,934	GRD-PCO	Perini Corporation	Central
1657	Hamdan Substation	Basrah	$5,001	GRD-PCO	Perini Corporation	Central
1655	Al Kaffat Substation	Basrah	$5,934	GRD-PCO	Perini Corporation	Central
1656	Al Seraji Substation	Basrah	$5,709	GRD-PCO	Perini Corporation	Central
1659	Shat Al Arab Substation	Basrah	$5,298	GRD-PCO	Perini Corporation	Central
18183	Al Fatah Pipe Crossing	Tameem	$29,715	GRD-PCO	Parson PJIV	North
18185	Kirkuk Canal Crossing	Tameem	$2,088	GRD-PCO	Parson PJIV	North
19604	Al Fatah River Crossing Tie-ins	Tameem	$8,156	GRD-PCO	Parson PJIV	North
18427	Seif Sa'ad Police Station	Babylon	$153	GRD-PCO	Foreign	South
13607	Hilla Maternity and Children's Hospital	Babylon	$7,414	GRD-PCO	Parsons Global Services	South
11812	Al Imam Primary Care Center	Babylon	$533	GRD-PCO	Parsons Delaware	South
21950	Babil Railway Station	Babylon	$274	GRD-PCO	Foreign	South

Table 3-5

SIGIR Project Assessments

Hilla Police Academy in Southern Iraq

PROJECT ASSESSMENT NUMBER: SIGIR-PA-05-032

SIGIR conducted audits and assessments of six contracts performed at the Hilla Police Academy; the contracts are valued at more than $13 million. In October 2005, SIGIR presented the results of its audit of the first five of those contracts, which used Development Fund for Iraq (DFI) funds to set up the initial 600-student Police Academy in Hilla. The sixth contract, which used IRRF funds, continued life support for the Police Academy and constructed semi-permanent facilities to accommodate an additional 600 students. SIGIR performed an on-site assessment and inspected the construction component of the IRRF-funded project, focusing on the quality of work completed as required in the contract. Although the IRRF-funded contract is complete, the on-site assessment confirmed that deficiencies still exist: cracks in the walls, inadequate backup power capability, poorly constructed sidewalks, poorly designed wastewater system, roof leaks, and inadequate security systems.

These were SIGIR's objectives for the construction portion of the IRRF-funded life support contract (W914NS-04-C-9046):

- Were project results consistent with original objectives?
- Were project components adequately designed before construction or installation?
- Did construction or rehabilitation meet the standards of the design?
- Were the Contractor's Quality Control (CQC) plan and the U.S. government's quality assurance program adequate?
- Were remedies for existing deficiencies on the completed contract initiated?

SIGIR's objectives for the five DFI contracts were to determine whether the completed projects were consistent with original objectives. In addition, SIGIR focused on the evaluation of previously known deficiencies to determine if appropriate corrective action was taken.

SIGIR on-site assessments disclosed gaps still existing in the perimeter walls that would allow insurgents to fire weapons into or place bombs inside the academy. Although some of the gaps were filled with sand bags and Hesco walls were installed next to many of the wall deficiencies, there are still force-protection issues that need correction to provide maximum security to the academy occupants. In addition, the perimeter walls were not supported with concrete. Also, there were problems with the sanitary system design, and the grinder pump appears to have never been maintained.

This DFI contract was for security upgrades, including an external lighting system, steel guard towers, and hydraulic steel lifts at each gate, which were not delivered or installed. Instead, makeshift towers were constructed in-house.

Makeshift Guard Tower at the Hilla Police Academy

Crack in hallway wall in Instructor Billeting Area *(Photo courtesy of contracting officer representative)*

Finally, the DFI contractor did not deliver or install the two generators. One generator removed for overhaul was not returned. The two generators that are currently on-site will not sustain the academy in case of a power outage.

If these problems are not addressed, continued degradation of the Police Academy infrastructure will occur. SIGIR recommended that U.S. management agencies conduct a comprehensive facility inspection and repair construction deficiencies at the Police Academy.

Kerbala Library, Kerbala, Iraq

PROJECT ASSESSMENT NUMBER:
SIGIR-PA-2005-033

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties to enable appropriate action when warranted. Specifically, SIGIR determined whether contract deficiencies were remedied in these four contracts:

- Contract DABV01-04-R-8339, March 30, 2004, $373,400 for construction and repairs throughout the building
- Contract DABV01-04-Q-8342, March 31, 2004, $197,500 for landscaping the library grounds
- Contract DABV01-04-Q-8343, March 31, 2004, $224,010 for furniture
- Contract DABV01-04-R-8353, April 4, 2004, $498,900 for computers and Internet connections

Bomb-damaged bridge crossing the Tigris River at Al Fatah, Iraq

This project comprised four contracts totaling $1.3 million, which were awarded to the same contractor. These contracts were for various upgrades to the Kerbala Library. The upgrades included minor construction and repair, landscaping, new furniture, and computers with Internet connections.

The minor construction and repairs contract required, but the contractor did not provide, sealing around the windows, Jordanian wooden frames (double) for wooden doors, 411 square meters of carpet, 10 ceiling fans, glass panels, slate boards, D-section end trim, and 24" x 6" and 24" x 10" shelves with supports. None of these items were provided by the contractor.

For the landscaping contract, the contractor provided a paved parking lot half the size of the specifications, no hedge plants, and two fountains (one broken and one inoperable). Only 22 of 42 required landscaping lights, and all of the park benches were broken.

The furniture contract required, but the contractor did not provide, 180 book shelves, 4 rolling ladders, 110 reading tables, 182 upholstered chairs (plastic chairs were delivered instead), 24 glass and wooden tables, computer tables, 68 swivel chairs, card catalogs with trays, and 60 computer desks. None of the items were provided except the chairs, which were thin plastic chairs—not upholstered chairs as specified.

Finally, for the Internet contract, the contractor provided only 14 of 68 computers, no workstations, no servers, no hardware or software, and no installation.

SIGIR recommended that U.S. management agencies coordinate and correct these long-standing deficiencies.

Horizontal Directional Drilling Project

SPECIAL ASSESSMENT NUMBER:
SIGIR-SA-2005-001

SIGIR responded to a Hotline referral that questioned the USACE decision to use horizontal directional drilling for routing 16 pipelines under the Tigris River despite predictions from a geologist that soil conditions underneath the Tigris River may not be conducive to drilling.

The river crossing project, located close to the town of Al Fatah, Iraq, replaces 16 pipelines that were contained in a bridge over the Tigris River. The lines were severed when the bridge was attacked by coalition bombing during Operation Iraqi Freedom.

Repairing the severed pipelines to provide crude oil to the Baiji refinery and the Iraq-Turkey pipeline is critical to Iraq's oil production and export goals. These repairs are expected to increase the flow rate from 300,000 barrels of oil per day (BPD) to 500,000 BPD. At a unit price of $25 per barrel, the potential daily increase in revenue for 200,000 BPD is $5 million per day. The Al Fatah, Iraq, project was awarded to a contractor by the USACE Southwest District Contract #DAACA63-03-D-0005, Task Order #6, on December 8, 2003.

Bridge cross-section showing melted pipes from bomb damage

SIGIR performed this special assessment to determine why the HDD project achieved only 32% of the planned pipeline throughput. SIGIR focused on the processes used by CPA and USACE to:

- arrive at the HDD decision
- award the subcontract
- develop the construction design
- manage project performance

The project failed because subsurface geologic conditions—such as loose, unconsolidated gravels and cobbles—made it impossible to retain open boreholes for large-diameter pipelines. Although the contractor was warned of these conditions by a consultant, the company awarded the drilling subcontract in September 2003. Neither USACE nor the contractor acted on the consultant's recommendation to perform additional research, which should have prevented the failure. These factors also contributed to the project's failure:

1. The contractor's project design did not provide the necessary flexibility to support HDD and conflicted with the security reasons that overturned an original decision to repair the bridge. Specifically, the design included valve manifolds located above ground on each side of the river for routing product through different lines. Placing the manifolds at designated locations on both sides of the river fixed the drilling area and the underground trajectory for the boreholes. Unfortunately, the geological conditions in this particular area were the same as those cited in the consultant's desktop study and not conducive to HDD. USACE did not recognize the contractor's inexperience with HDD and should have required design reviews and approvals before mobilizing the HDD project team.
2. The contractor awarded a firm fixed-price subcontract to Willbros, Inc., which required the subcontractor to perform drilling services for a six-month period. The contract converted to a daily-rate time and materials contract after the six-month firm fixed-price period expired. There was no requirement for the subcontractor to complete any boreholes and install pipes.

   Because the terms and conditions of the subcontract did not provide completion requirements, the contractor and USACE assumed full completion risk for the project. However, USACE and the contractor did not adequately structure the project into manageable phases that should have increased the probability of success or confirmed the consultant's warnings before full-scale mobilization. These phases should have been implemented: a thorough geological analysis, a construction-design review and approval process, and a formal project management system.
3. The project's compartmentalized management structure did not foster effective communications between the subcontractor, general contractor, and USACE. Although communication protocols between general contractors and subcontractors are

necessary, the critical nature and technical complexities associated with this project required expert technical input from all parties involved. The contractor's policy, which restricted the subcontractor to route all communication through the contractor company, appears to have impeded an effective exchange of ideas and solutions. A project management team comprising representatives from USACE, the contractor, and the subcontractor would have fostered a decision-making process that effectively identified and resolved technical problems.

4. USACE's direction to the contractor was neither adequate nor timely. USACE's first formal direction to the contractor was provided more than two months after the contractor had already awarded the HDD subcontract. On December 8, 2003, USACE issued Task Order #6 instructing the contractor to analyze alternatives for using either a dedicated bridge or tunnel under the river. The direction incorrectly implied that alternatives were still being considered even though the contractor had awarded the HDD subcontract two months earlier.

   Appropriate procurement oversight by USACE should have provided the timely direction necessary to mitigate the government's risk for the project, including:
   - formal engineering and geotechnical studies that could have invalidated the HDD concept
   - a project design review and approval process
   - a formal performance reporting system that demonstrated progress against a detailed baseline plan
   - formal program management reviews that identify and resolve performance issues

5. USACE's on-site technical management did not comprehend the problems encountered by the drilling subcontractor, did not adequately surface issues to USACE senior management, and/or senior management did not take timely and aggressive action to resolve performance issues.

   Because the government and contractor failed to adequately research, plan, design, and manage the project, $70 million allocated to the project was exhausted while only 32% of the drilling scope was completed. The HDD project was replaced by a contract awarded to Parsons Iraqi Joint Venture, at a cost of $29 million—the amount SIGIR attributes to the cost overrun.

   Additionally, the hostile environment where the project is being performed has protracted the personal risk to contractor and government personnel working in the vicinity by more than a year. Finally, failure to complete the project may have been instrumental in losing more than $1.5 billion in potential oil revenues critical to the Iraqi government.

Border Forts in Sulaymaniyah, Iraq

PROJECT ASSESSMENT NUMBER:
SIGIR-PA-05-021, 022, 023, & 024

SIGIR assessed the in-process construction work being performed at four border-denial points (border forts) to determine their status and whether intended objectives will be achieved. The border forts were being built under a task order issued as part of a cost-plus, design-build, indefinite-delivery, indefinite-quantity contract. The objective of the task order was to build 57 new border forts using essentially the same standard design. The border forts will provide the Iraqi border police bases of operation along the Iraq-Iran border in the Sulaymaniyah and Diyala governorates. The estimated cost of the definitized task order for design and construction of the 57 border forts is $35,900,149. The four border forts that SIGIR assessed were all located on the mountainous Iraq/Iran border in remote areas of the Sulaymaniyah governorate.

During the design phase, to reduce construction time, the contractor proposed replacing steel-reinforced concrete columns and beams with structural steel I-beams. The contractor prepared 90% design drawings for the structural steel construction. There is no record that the Project and Contracting Office (PCO) reviewed or approved the design changes. During construction, USACE personnel observed that the horizontal I-beams supporting the roof were deflecting under the weight of the roofing material, and some of the I-beams were improperly installed. Further investigation determined that the I-beams were smaller than design requirements, and normal-strength A36 steel was used instead of high-strength A50 steel. In addition, the design calculations used for the structural steel design did not include snow-load requirements, and the drawings did not specify the required type of steel to be used.

Vertical steel I-beams installed out of proper alignment (not plumb) at border fort

The assessment determined that the contractor did not prepare a properly designed facility and did not obtain written approval from PCO for the design before construction. Correcting the problem will require significant rework, including a design modification and retrofit of the I-beams at the four forts assessed by SIGIR. Although the original design was intended to reduce construction time, it resulted in increased construction time. Further, because the construction of the border forts was done under a cost-plus contract, the U.S. government may be required to pay for the rework.

The four border forts are scheduled for structural steel retrofit to reinforce the

Example of steel I-beam deflection during construction of border forts
(Photo courtesy of the Project and Contracting Office)

Exterior view of border fort

installed undersized and standard-strength I-beams and to incorporate the additional snow-load requirements. The retrofit of the structural I-beams had not yet begun at the time of the site visit.

The SIGIR on-site assessment found that perimeter security walls, berms, concertina wire, and entrance gates had not been constructed as required under the contract. The jail facility, generator units, fuel tanks, and water system were not secured within perimeter security walls or berms. There were no physical restrictions on access to the border-post buildings.

The assessment showed the border forts were not yet functional because the perimeter security requirements had not been addressed. If the border fort construction is completed in accordance with the contract requirements, however, and the perimeter security walls or berms are constructed, the project should result in functional border forts.

SIGIR will follow up to ensure that rework is completed and that cost increases are justifiable because of two factors:

- the risk to human life caused by the inadequate construction and the lack of perimeter security found at the time of SIGIR's assessment
- the increase in contract costs, which will likely be significant

Project Phoenix Restore Qudas Gas Turbine Units to Operation, Baghdad, Iraq

PROJECT ASSESSMENT NUMBER:
SIGIR-PA-05-029

The purpose of "Project Phoenix—Restore Qudas Gas Turbine Units to Operation" was to commission six power generation units (two Frame 9E and four LM-6000 Units) installed

under a previous DFI project at the Qudas Electrical Power Plant. The previous project did not result in an operational system. The current IRRF-funded project was to put the power generation units into commission to produce electricity for the Iraqi grid. The combustion gas turbine commissioning at Qudas, which cost $11,390,750, was reported complete in October 2005.

SIGIR's assessment of the Qudas project focused solely on sustainability. To assess sustainability, SIGIR addressed a number of key aspects, including:

- the availability of consumables—such as fuel, lubricating oil, and chemical additives—to keep the plant operational
- spare parts inventory management
- presence and utilization of operation and maintenance (O&M) manuals
- implementation of preventive maintenance and monitoring system
- the presence and effectiveness of a formal training program, including on-the-job training

Although improving the supply and quality of consumable products, such as fuel, was not an objective of the Qudas project, the current supply and quality of fuel and the lack of natural gas at Qudas does not support efficient and effective combustion turbine operation. In addition, the current method for delivering diesel fuel for the LM-6000 units by truck cannot sustain long-term continuous operations.

Maintenance manuals for the Frame 9E Units and the LM-6000 were on hand. The LM-6000 manuals were in the two control room facilities adjacent to each unit and appeared to be used by the plant technicians. Alternatively, Frame 9E manuals were located in a cabinet at the Qudas administration building conference room and not readily available for the operators. Preventive maintenance was not performed, and documentation was not available to demonstrate the presence of a preventive maintenance program. Instead, maintenance on the LM-6000s and Frame 9E units was reactive—not preventive.

Functional parts and emergency spare parts were not part of the scope for the Qudas project. However, in a separate project for Qudas, more than $2 million had been expended for emergency spare parts, and $2.5 million had been expended for functional spares.

During the contract period, two separate training classes were conducted, which focused on the operation and maintenance of the LM-6000 units.

GRD-PCO, USACE, and IRMO are directing current and future efforts at sustaining Iraq's entire power generation capability. GRD-PCO has issued a request for proposal for the development, implementation, and sustainment of an effective operations and maintenance plan in coordination with the Iraqi Ministry of Electricity. This contract is intended to enhance production and long-term reliability and availability at the Ministry's power stations by having embedded and mobile teams assist plant operators in a number of activities, including:

- developing and implementing O&M proce-

dures
- developing and implementing O&M reports
- providing an overall spare parts plan and inventory control
- implementing on-the-job training activities

GRD-PCO, USACE, IRMO, and USAID are currently in the planning stages of developing requirements for comprehensive bid documents to fulfill the complete routine maintenance needs for ten Iraqi power plants, including the Qudas Gas Turbine Plant. These needs, which currently are not fully funded, include hot-gas path inspections, combustion inspections, aero-derivative turbine change-outs, as well as functional parts identification and procurement to support the combustion turbine overhauls and to maintain an on-hand strategic spare reserve. This initiative also emphasizes that the Ministry should become more involved in funding some of the requirements.

Although GRD-PCO is initiating actions that address sustainability deficiencies identified in the SIGIR on-site assessment, the initiatives have not yet been implemented. Because of the significance of the electrical sector to the well-being of the Iraqi people and economy, SIGIR will continue to inspect electrical projects for sustainability.

Security Upgrades at the Port of Um Qasr, Southern Iraq

PROJECT ASSESSMENT NUMBER:
SIGIR-PA-05-025, 026, & 027

SIGIR conducted assessments of three related projects (under construction or re-

Qudas Power Plant gas turbine generator units

Cranes and patrol boats at the port of Um Qasr

cently completed) to enhance the security and sustainability of the port of Um Qasr in southern Iraq:

- an Armory/Ammunition Supply Point (ASP)
- Operations Center Renovation
- Port of Um Qasr Security Upgrades

All three projects support the increased security at the port of Um Qasr. Increased security is one requirement needed to obtain the International Ship and Port Facility Security Code (ISPS) certification for an international transfer point of shipping goods. Increased security will support the ISPS certification that will enhance the shipping and receiving of Iraqi goods and foreign merchandise to and from Iraq.

Um Qasr is located at the southern edge of the country's 53-kilometer-long Persian Gulf shoreline adjacent to the border with Kuwait. Um Qasr is a historic operational port that has undergone mine clearance and dredging since April 2003. It is a deepwater port on the Persian Gulf and a critical link for commerce with other countries.

SIGIR found that the ongoing or completed construction at all three projects appeared to meet the contractual specifications. The contractor quality control program was in place at only one of the three projects. However, the U.S. government's quality assurance programs were sufficient to ensure quality construction at all three projects. Project sustainability and operational effectiveness appeared to be adequately addressed in the statements of work or in the modifications to the contracts.

Ammunition Supply Point, Um Qasr, Iraq

PROJECT ASSESSMENT NUMBER: SIGIR-PA-2005-025

The project's contract cost is approximately $252,650, and the work was complete when

assessed. The statement of work (SOW) submitted for the contract stated that this work was to provide materials and equipment to construct an ammunition supply point (ASP) at the Um Qasr Naval Military Training Base. The contract and the original SOW required substantial modifications to provide an ASP building that was acceptable to meet the intent of the project. The SIGIR team found that the work completed by the contractor was consistent with the contractual specifications and addressed both sustainability and operational effectiveness. The ASP was being used for its intended purpose by the Iraqi Navy at the time of the assessment. Through an interpreter, the Iraqi Navy representative interviewed on-site expressed satisfaction with the results of the project.

On September 19, 2005, after the final USACE inspection, the ASP building was turned over to the Iraqi Navy. As-built drawings and information on the operation and maintenance of the fire alarm system and the heating, ventilation, and air conditioning (HVAC) were provided to the Iraqi Navy to enhance sustainability. The contract included

Ammunition supply point building

warranties on all equipment for 12 months after the issuance of the Taking Over certificate. In addition, the contract certified all operations for 12 months. During SIGIR's visit to the site, a large crack in a stucco wall outside the ASP was identified. The USACE Resident Engineer noted that 6-month and 12-month reviews of completed projects are done to identify any corrective actions required by the contractor. During the warranty period, the customer is required to provide a list of defects in workmanship and equipment to the USACE representative for resolution. The USACE Resident Engineer stated that this crack would be noted and addressed during the 6-month review.

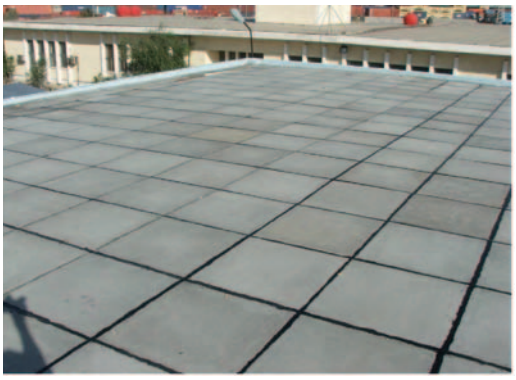
Operations Center and Security Facilities Construction

PROJECT ASSESSMENT NUMBER: SIGIR-PA-2005-026

This project's contract cost is approximately $1,175,040, and the work was almost complete when assessed. The contract's Statement of Work (SOW) stated that this work consisted of all construction services for the renovation of the operations building with security upgrades and kiosk renovation. The major tasks to be accomplished included earthwork; perimeter fence and vehicle gate construction; roofing replacement; utilities replacement; and interior work, such as doors, windows, walls, floors, and ceiling repair and finishing.

The SIGIR team found that the work completed by the contractor was consis-

Renovated kiosks adjacent to Operations Center



New tile roof at Operations Center

Security fencing and utility trench at Um Qasr

tent with the contractual specifications and addressed both sustainability and operational effectiveness.

Port of Um Qasr Security Upgrades

PROJECT ASSESSMENT NUMBER: SIGIR-PA-2005-027

This project had an awarded contract cost of approximately $3,747,000. The contract called for a secure perimeter for the port of Um Qasr through the construction of chain-link fences, points of entry, observation posts, roads, lighting, electrical power, back-up power, and telecommunications.

Construction of this project was in the early stages at the time of the assessment. Significant work had been accomplished on the earthwork and fence line construction. Based on the current performance of this project and on the U.S government quality assurance program at the other two projects at Um Qasr, it is very likely that quality will meet contractual specifications.

The original contract solicitation and subsequent awarded contract consisted of an approximately 9,600 meter fence alignment. However, the project was conceived without input from the local community. The Um Qasr community was concerned that this security fence would block an existing road critical to the town. Following the contract award and meetings with the Iraqi Port Authority, Um Qasr Town Council, IRMO, and the Ministry of Transportation, it was determined that the proposed alignment depicted in the award documents was not acceptable.

The revised fence alignment caused several changes to the contract scope, including adding a North Port-South Port connector road to increase efficiency and security, adding a reinforced concrete railroad crossing, reducing perimeter lighting alignment, reducing the number of points of entry, reducing perimeter access road alignment, reducing observation posts, and adding renovations (upgrades) to the portion of existing wall structure.

In addition to the required contract additions, portions of the contract were either unclear in original scope, incorrect in the original scope, or missed requirements that were in the original scope. These are the changes:

- increasing truck staging area for the port
- adding manual railroad-crossing swing gates
- reducing perimeter light wattage from

1000W to 400W
- adding galvanized barbed wire support arms
- revising the points of entry configuration
- providing a 1-megawatt high-voltage generator instead of two 625-kilowatt generators

The net result of these changes was a reduction of the contract price by $48,485. The contract was decreased from $3,747,000 to $3,678,515.

Al Balda Police Station, Hilla, Iraq
PROJECT ASSESSMENT NUMBER:
SIGIR-PA-05-015

SIGIR assessed a $134,655 renovation and construction project at the Al Balda Police Station. The overall objective of this project was to renovate and reconstruct the Al Balda Police Station, an active station in Hilla. The existing police station, although structurally sound, needed rehabilitation. Major project tasks included an upgrade in perimeter security, installation of a new water supply system, installation and rehabilitation of the septic system, and installation of a new electrical generator. Other tasks included construction of an arms storage building, information building, dormitory, and cafeteria building.

The contract did not specifically require design drawings, and they were not provided by the contractor. Nevertheless, this did not significantly influence the outcome of the project. Minimal design was required, which the USACE Project Manager and Quality Assurance Representative ultimately accomplished. All work observed by SIGIR appeared to be consistent with the contract specifications.

Because of the renovation and reconstruction of the Al Balda Police Station, the Iraqi Security Forces now have another operational police station. This occurred primarily because the USACE Project Engineer and Quality Assurance Representative effectively managed the project.

SWAT Police Station, Hilla, Iraq
PROJECT ASSESSMENT NUMBER:
SIGIR-PA-05-018

The rehabilitation of the Special Weapons and Tactics (SWAT) Police Station project was budgeted at $2,219,092. The project consisted of demolition and removal of existing damaged

Exterior view of the Al Balda Police Station Information Building

facilities, renovation of existing facilities, and the design and construction of an operations building, armory, jail facility, dormitory, and dining facility. The construction also incorporated additional security measures, including perimeter controls, stand-offs, blast protection, and interior-controlled entry and passage.

The contractor was required to submit a 30% design package to USACE for review. Concurrent with the review, the contractor was required to continue developing plans and specifications, adjust the design based on review comments, and provide a 95% design package to USACE for final review and approval. Although USACE approved the contractor's final design submittal and construction start, the SIGIR assessment team found that the contractor had failed to submit a complete design package. The SIGIR team found that the contractor's design submittal did not include design drawings to illustrate existing and proposed work for the road network, water and distribution systems, sanitary sewer collection systems, electrical power distribution systems, electrical power generator, and mechanical systems. In addition, the contractor's design submittal did not include an overall sidewalk plan, design of the sanitary sewer system for the entire facility, and a comprehensive site storm-water management plan. The contract also did not provide required construction specifications for the project.

The SIGIR on-site inspection found the demolition of facilities to be complete, with no discrepancies. The inspection also found the dormitory building to be complete and occupied by Iraqi SWAT personnel. The dining facility was also complete, but the assessment team noted discrepancies in the quality and type of appliances in the food preparation area. With respect to exterior construction and renovation work, the on-site assessment disclosed an improperly constructed helicopter pad, improperly anchored light poles, improperly positioned hand railings on exterior building stairs, cracks in the stucco exterior of buildings, and cracks and rough finish in concrete sidewalks.

Improper anchoring of staircase railing

External staircase

The contract required a Quality Control Plan, which the contractor had not submitted. However, the contractor did submit quality control reports for each day that work activities occurred on-site. The contractor also provided test results to the contracting officer as required by the contract. Similarly, the assessment team determined the USACE Quality Assurance Reports and

Newly installed concrete and asphalt helicopter pad

Quality Assurance Deficiency Logs were sufficiently complete, accurate, and timely.

Ground Project Survey Program

The SIGIR's Ground Assessment Program is an important component of SIGIR's program for ensuring the broadest possible coverage of construction sites in Iraq. This component involves conducting ground-level general reviews of project construction sites, noting deficiencies, assessing overall progress, and taking photographs. The information is subsequently analyzed for contract compliance, shared with program management, and used to identify locations for more detailed engineering assessments. The program was initiated toward the end of the previous quarter, with 60 surveys conducted to date. SIGIR is in the process of analyzing these surveys.

The 60 surveys include 7 medical clinics, 2 maternity and children's hospitals, 3 schools, 7 police station checkpoints, 15 police stations, 22 border posts, 2 road projects, a fire station, and a railway station. Projects were predominantly located in the northeast of Iraq and throughout southern Iraq.

For the approximate locations of the projects where surveys were conducted, see Figure 3-2. For a list of the individual projects, see Table 3-6.

Aerial Project Survey Program

The SIGIR Satellite Imagery Group, based in Washington, D.C., has begun an aerial projects

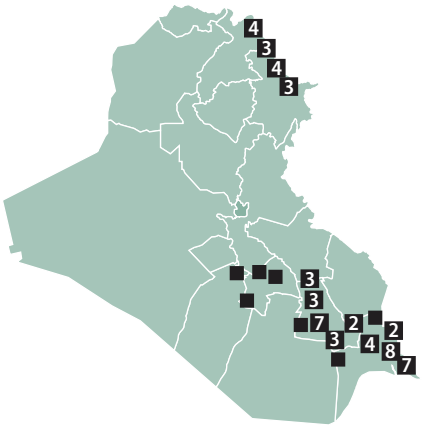


Figure 3-2
GROUND SURVEY PROJECTS
4th quarter 2005, locations approximate

Ground Survey Project List

GRD-PCO Project Number	Project Name	Governorate
11943	Clinic	Thi-Qar
19220	Police Station Checkpoint	Thi-Qar
19218	Police Station Checkpoint	Thi-Qar
19219	Police Station Checkpoint	Thi-Qar
19990	Police Station	Thi-Qar
10630	School	Thi-Qar
10613	School	Thi-Qar
10588	School	Thi-Qar
17867	Thi-Qar Village Roads	Thi-Qar
11941	Clinic	Thi-Qar
10072	Fire Station	Thi-Qar
10318	Maternity & Pediatric Hospital	Thi-Qar
12781	Border Post - #03	Sulaymaniyah
20560	Border Post - #53	Sulaymaniyah
12787	Border Post - #29	Sulaymaniyah
20567	Border Post - #57	Sulaymaniyah
20568	Border Post - #65	Sulaymaniyah
20565	Border Post - #45	Sulaymaniyah
12840	Border Post - #20	Sulaymaniyah
12141	Border Post - #14	Basrah
12144	Border Post - #12	Basrah
12801	Border Post - # 10	Sulaymaniyah
12145	Border Post - # 11	Basrah
12842	Border Post - # 21	Sulaymaniyah
12161	Border Post - #04	Basrah
20569	Border Post - # 64	Sulaymaniyah
12802	Border Post - #11	Sulaymaniyah
11863	Clinic	Basrah
1270	Maternity & Children's Hospital	Qadissiya
17783	Village Roads Segment 2 (3.5 km)	Basrah
12800	Border Post - #9	Sulaymaniyah
12856	Border Post - #24	Sulaymaniyah
12142	Border Post - #13	Basrah
12149	Border Post - #10	Basrah
11860	Clinic	Basrah
11897	Clinic	Najaf
19217	Police Station Checkpoint	Thi-Qar
20347	Police Station Barracks Phase I	Thi-Qar
18243	Police Station	Basrah
20333	Police Station	Thi-Qar
19991	Police Station	Thi-Qar
19222	Police Station Checkpoint	Thi-Qar
18346	Police Station	Qadissiya
19114	Police Station	Thi-Qar
19160	Police Station	Thi-Qar
19221	Police Station Checkpoint	Thi-Qar
12137	Border Post - #17	Basrah
18241	Police Station	Basrah
19480	Police Station	Basrah
18263	Police Station	Basrah
21251	Railway Station Rehabilitation	Basrah
11866	Clinic	Basrah
19223	Police Station Checkpoint	Thi-Qar
18248	Police Station	Basrah
12138	Border Post-#16	Basrah
18268	Police Station	Basrah
18223	Police Station	Basrah
18273	Police Station	Basrah
20562	Border Post–#39	Sulaymaniyah
11862	Clinic	Basrah

Table 3-6

assessment initiative to increase the visibility and transparency of U.S.-funded project construction in Iraq. Information obtained by satellite imagery analyses will be provided as information to SIGIR Project Assessment teams in Iraq and to the respective contracting offices.

SIGIR has partnered with two federal agencies that specialize in aerial satellite imagery analysis, the National Geospatial-Intelligence Agency (NGA) and National Ground Intelligence Center (NGIC). This quarter SIGIR has received from NGA and NGIC 53 satellite assessments and unclassified imagery products of forts located on the Iraq border. Figure 3-3 shows the approximate location of the aerial imagery assessments conducted by SIGIR, NGA, and NGIC during this quarter.

The aerial assessments have identified projects that are in compliance with contract specifications and several that were not. Of the 58 projects tasked, 49 were observed to be in accordance with contract specifications. These are some of the significant findings of the projects that were not in accordance with contract specifications:

- Five projects could not be located using the coordinates provided by the contracting office.
- Three projects were not meeting contract specifications based on measured dimensions of the observed buildings.
- One project reported as 100% complete was observed to be 80% complete.

NGA and NGIC images are supplied for analysis and exploitation by SIGIR imagery analysts and are then reported to SIGIR Proj-

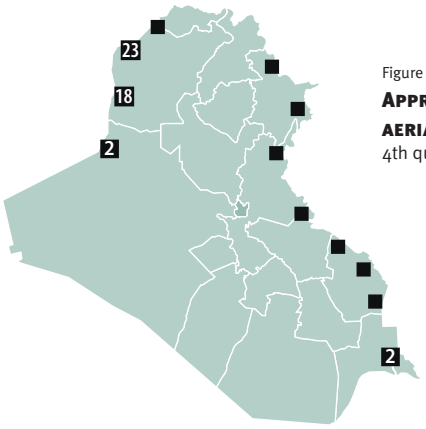


Figure 3-3
APPROXIMATE LOCATIONS OF AERIAL IMAGERY ASSESSMENTS
4th quarter 2005, locations approximate

Imagery provided by Iraq and Arabian Peninsula Division, NGA

Imagery provided by the 3RD Military Intelligence Center, NGIC, Geospatial Intelligence Directorate

ect Assessments staff and the various contracting offices in Iraq that have oversight of these projects. Satellite imagery is provided from multiple government commercial satellite imagery libraries. Images contained in these libraries come from either of two main commercial satellites—Digital Globe's Quickbird satellite and Space Imaging's Ikonos satellite. Imagery from both satellites is represented above. The images on the previous page are examples of imagery of various IRRF-funded projects provided to SIGIR by NGA. The images above are provided by NGIC.

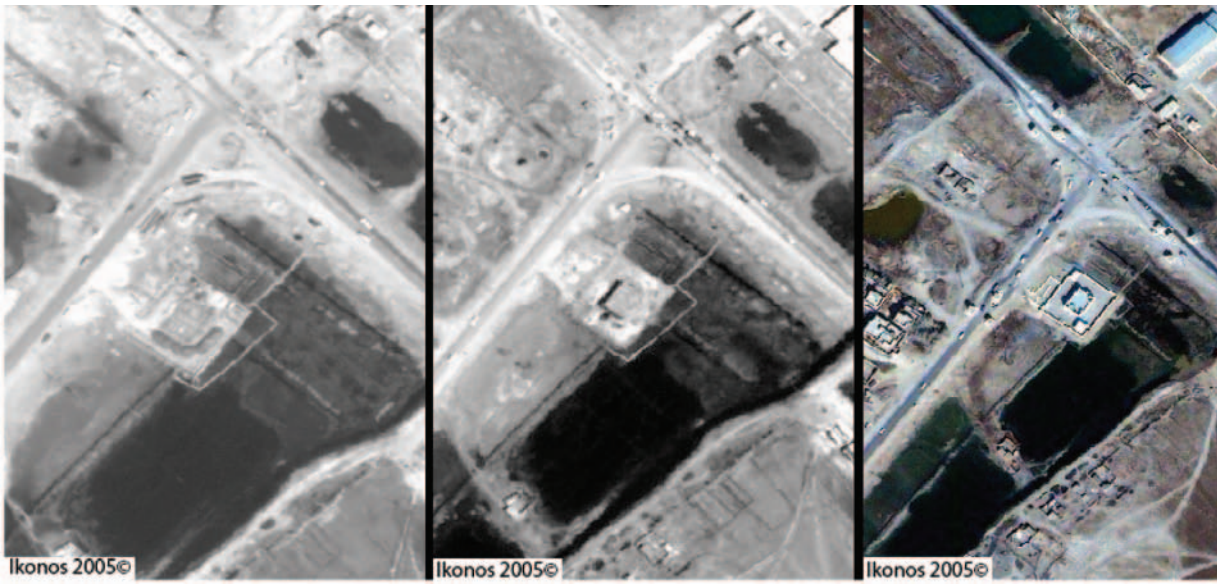
NGA imagery reviewed from May 5, 2005, shows two completed border forts near the northwestern region of the Iraq-Syria border. Visual assessment shows that both forts generally appear to be built according to project specifications.

On the left is an NGIC image taken on December 20, 2005, that that shows a completed border fort near the southeastern region of the Iraq-Iran border. Construction began on November 5, 2004, and was completed on August 31, 2005. Visual assessment shows that contract requirements generally appear to be met.

On the right is an NGIC image taken on September 28, 2005, near the southeastern region of the Iraq/Iran border, that confirms the location and construction of an Iraq border post. Construction at this site began on November 24, 2004, and was completed on September 22, 2005. Visual assessment shows that the project appears to be generally in accordance with contract requirements.

SIGIR Imagery Analysis

In addition to the collaborative efforts with NGA and NGIC, SIGIR has been conducting its own satellite imagery analyses of project sites located throughout Iraq. In November



Imagery provided by SIGIR imagery analysts

2005, SIGIR hired an Imagery Analyst to conduct analyses of project sites and compare this with the contract's statements of work and records made available to SIGIR by the respective contracting agencies.

Images displayed above, taken between March 2005 and November 2005, show the progress of a police station and checkpoint construction project in the southeastern region of Iraq. The first image at the left, taken on March 22, 2005, shows initial ground-clearing and preparation. The second image, taken on April 19, 2005, shows the framework of the police station being built. The last image, taken on November 11, 2005, shows a completed police station and nine guard posts. The visual indicators show that the project generally complies with the contract specifications.